

1. Apparatus for treating a product with ultraviolet light,
comprising:

a chamber having an inlet and an outlet, and an interior space
between said inlet and said outlet;

5 an ultraviolet light permeable conveyor configured to move the
product through said interior space from said inlet to said outlet, said
conveyor having a top surface which receives the product and an opposite
bottom surface;

a source of ultraviolet light coupled to said chamber and
10 configured to direct ultraviolet light in at least first and second portions
within said interior space toward said conveyor;

a first reflector positioned in said interior space and above said
top surface of said conveyor, said first reflector positioned such that the
first portion of the ultraviolet light is redirected toward the product on said
15 top surface; and

a second reflector positioned in said interior space and below
said bottom surface of said conveyor, said second reflector positioned such
that the second portion of the ultraviolet light is redirected upwardly
through said conveyor toward the product on said top surface.

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2. The apparatus of claim 1, further comprising a third reflector positioned in said interior space and adjacent said top surface of said conveyor on an opposite side of said conveyor from said first reflector, said third reflector sloped such that the ultraviolet light is redirected toward the
5 product on said top surface.

3. The apparatus of claim 2, wherein said first, second, and third reflectors are formed of a dimpled, polished metal.

4. The apparatus of claim 2, wherein said first and second reflectors are positioned at respective slopes relative to said top surface, and said slopes are adjustable.

5. The apparatus of claim 2, wherein said source of ultraviolet light comprises an ultraviolet lamp assembly mounted above said top surface of said conveyor so as to direct the ultraviolet light generally vertically downward toward said top surface.

6. The apparatus of claim 2, wherein said conveyor further comprises an endless conveyor belt having an upper portion and a lower portion, and said second reflector is positioned between said upper and lower portions.

7. The apparatus of claim 1, wherein said first and second reflectors are formed of a dimpled, polished metal.
8. The apparatus of claim 1, wherein said first reflector is positioned at a slope relative to said top surface, and said slope is adjustable.
9. The apparatus of claim 1, wherein said source of ultraviolet light comprises an ultraviolet lamp assembly mounted above said top surface of said conveyor so as to direct the ultraviolet light generally vertically downward toward said top surface.
10. The apparatus of claim 1, wherein said conveyor further comprises an endless conveyor belt having an upper portion and a lower portion, and said second reflector is positioned between said upper and lower portions.

11. Apparatus for treating a product with ultraviolet light,
comprising:

a chamber having an inlet and an outlet, and an interior space
between said inlet and said outlet;

5 an ultraviolet light permeable conveyor configured to move the
product through said interior space from said inlet to said outlet, said
conveyor having a top surface which receives the product and an opposite
bottom surface;

a source of ultraviolet light coupled to said chamber and
10 configured to direct at least a first portion of ultraviolet light within said
interior space through said conveyor;

a first reflector positioned on an opposite side of said conveyor
from said source of ultraviolet light, said first reflector positioned such that
the first portion of ultraviolet light is redirected through said conveyor at
15 the product on said top surface.

12. The apparatus of claim 11, wherein said source of ultraviolet
light is positioned above said top surface of said conveyor and said reflector
is positioned below said conveyor.

13. The apparatus of claim 11, wherein said conveyor includes opposite side edges extending along a length, and further comprising:

a second reflector positioned in said interior space generally along a first one of said side edges, said second reflector positioned such
5 that a second portion of the ultraviolet light is redirected transversely relative to the length of the conveyor toward the product on said top surface.

14. The apparatus of claim 13, further comprising:

a third reflector positioned in said interior space generally along a second one of said side edges, said third reflector positioned such that a third portion of the ultraviolet light is redirected transversely relative
5 to the length of the conveyor toward the product on said top surface.

15. A method of treating a product with ultraviolet light, the product moving within a chamber and along a conveyor which is permeable to ultraviolet light and includes a top surface, comprising:

 moving the conveyor through the chamber with the product

5 carried on the top surface;

 directing a first portion of the ultraviolet light at the product;

 directing a second portion of the ultraviolet light through the conveyor; and

 reflecting the second portion of the ultraviolet light back

10 through the conveyor and toward the product.

16. The method of claim 15, further comprising directing the second portion of the ultraviolet light from above the top surface of the conveyor through the conveyor and reflecting the second portion of the ultraviolet light upwardly back through the conveyor at the bottom of the

5 product.

17. The method of claim 16, wherein the product includes an outer perimeter and the conveyor includes a length, and the method further comprises:

directing a third portion of the ultraviolet light adjacent to the
5 outer perimeter of the product; and

reflecting the third portion of the ultraviolet light toward the product in a generally sideways direction transverse to the length of the conveyor.

18. The method of claim 17, further comprising:

directing a fourth portion of the ultraviolet light adjacent to the
outer perimeter of the product on an opposite side of the product from the
5 third portion; and

reflecting the fourth portion of the ultraviolet light toward the product in a generally sideways direction transverse to the length of the conveyor.

19. The method of claim 15, wherein the product includes an outer perimeter and the conveyor includes a length, and the method further comprises:

directing a third portion of the ultraviolet light adjacent to the
5 outer perimeter of the product; and

reflecting the third portion of the ultraviolet light toward the product in a generally sideways direction transverse to the length of the conveyor.

20. The method of claim 19, further comprising:

10 directing a fourth portion of the ultraviolet light adjacent to the outer perimeter of the product on an opposite side of the product from the third portion; and

reflecting the fourth portion of the ultraviolet light toward the product in a generally sideways direction transverse to the length of the
15 conveyor.

21. The method of claim 15, further comprising:

stopping the conveyor while the first and second portions of ultraviolet light are directed at the product and through the conveyor.

22. The method of claim 15, further comprising:
continuously moving the conveyor while the first and second portions of ultraviolet light are directed at the product and through the conveyor.

23. The method of claim 15, further comprising:
curing an ultraviolet light curable material on the product with the first and second portions of ultraviolet light.

24. The method of claim 15, further comprising:
curing an ultraviolet light curable adhesive on the product with the first and second portions of ultraviolet light.